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"Local Telephone Pricing in a Competitive Environment," (with J. Ordoover), in Telecommunications Regulation Today and Tomorrow, E. Noam (ed.), Harcourt Brace Jovanovich, 1983.

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### Unpublished Reports:

The MFJ: Still Relevant?, (with B. Douglas Bernheim), 1995-96.

"Why Do Christie and Schultz Infer Collusion From Their Data?," (with Alan Kleidon), 1995.

"Access Policies and ECPR," (with W.J. Baumol and J. Ordover), 1995.

"Economic Foundations for Vertical Merger Guidelines," (with B. Douglas Bernheim), 1994.

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"Demonopolization," (with Sally Van Sicken), OECD Vienna Seminar Paper, 1993.

"Anti-Dumping Policy: Protecting of Suppliers and Protecting of Competition," draft report for OECD project, 1996.

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"Economic Analysis of Section 337: The Balance Between Intellectual Property Protection and Protectionism," (with J. Ordover) 1990.

"Privatization to Limit Public Sector Discretion," (with Carl Shapiro) 1989.

"Arming Decisions Under Asymmetric Information," 1989.

"Regulation of Information Services," 1987.

"The Effects of Capped NTS Charges on Long Distance Competition," (with M. Katz).

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"Discussion of Regulatory Mechanism Design in the Presence of Research Innovation, and Spillover Effects," 1987.

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"Deregulation of Long Distance Telephone Services: A Public Interest Assessment," (with M. Katz).

"Competition-Related Trade Issues," report prepared for OECD.

"Notes on Non-price Anticompetitive Practices by Dominant Firms," (with J. Ordover), 9th Annual Telecommunications Policy Research Conference, Annapolis, MD, April 1981.

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"The Economics of Equipment Leasing: Costing and Pricing," 1980.

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"An Economic-Demographic Model of the Housing Sector," (with B. Hickman and M. Hinz), Center for Research in Economic Growth, Stanford University, 1973.

Invited Conference Presentations:

FTC Hearings on the Changing Nature of Competition in a Global and Innovation-Driven Age

"Vertical Issues for Networks and Standards" 1995

Wharton Seminar on Applied Microeconomics

"Access Policies with Imperfect Regulation" 1995

Antitrust 1996, Washington D.C.

"Assessing Joint Ventures for Diminution of Competition" 1995

ABA Annual Meeting, Section of Antitrust Law

"Refusals to Deal -- Economic Tests for Competitive Harm" 1995

FTC Seminar on Antitrust Enforcement Analysis

"Diagnosing Collusion Possibilities" 1995

Philadelphia Bar Education Center: Antitrust Fundamentals

"Antitrust--The Underlying Economics" 1995

Vanderbilt University Conference on Financial Markets "Why Do Christie and Schultz Infer Collusion From Their Data?"	1995
ABA Section of Antitrust Law Chair's Showcase Program "Discussion of Telecommunications Competition Policy"	1995
Conference Board: 1995 Antitrust Conference "Analysis of Mergers and Joint Ventures"	1995
ABA Conference on The New Antitrust: Policy of the '90s "Antitrust on the Super Highways/Super Airways"	1994
ITC Hearings on The Economic Effects of Outstanding Title VII Orders "The Economic Impacts of Antidumping Policies"	1994
OECD Working Conference on Trade and Competition Policy "Empirical Evidence on The Nature of Anti-dumping Actions"	1994
Antitrust 1995, Washington D.C. "Rigorous Antitrust Standards for Distribution Arrangements"	1994
ABA -- Georgetown Law Center: Post Chicago-Economics: New Theories - New Cases? "Economic Foundations for Vertical Merger Guidelines"	1994
Conference Board: Antitrust Issues in Today's Economy "New Democrats, Old Agencies: Competition Law and Policy"	1994
Federal Reserve Board Distinguished Economist Series "Regulated Private Enterprise Versus Public Enterprise"	1994
Institut d'Etudes Politiques de Paris "Lectures on Competition Policy and Privatization"	1993
Canadian Bureau of Competition Policy Academic Seminar Series, Toronto. "Public Versus Regulated Private Enterprise"	1993
CEPS Symposium on The Clinton Administration: A Preliminary Report Card "Policy Towards Business"	1993
Columbia Institute for Tele-Information Conference on Competition in Network Industries, New York, NY "Discussion of Deregulation of Networks: What Has Worked and What Hasn't"	1993
World Bank Annual Conference on Development Economics	

"Public Versus Regulated Private Enterprise"	1993
Center for Public Utilities Conference on Current Issues Challenging the Regulatory Process, Santa Fe, NM	
"The Economics of Current Issues in Telecommunications Regulation"	1992
"The Role of Markets in Presently Regulated Industries"	1992
The Conference Board's Conference on Antitrust Issues in Today's Economy, New York, NY	
"Antitrust in the Global Economy"	1992
"Monopoly Issues for the '90s"	1993
Columbia University Seminar on Applied Economic Theory, New York, NY	
"Economic Rationales for the Scope of Privatization"	1992
Howrey & Simon Conference on Antitrust Developments, Washington, DC	
"Competitive Effects of Concern in the Merger Guidelines"	1992
Arnold & Porter Colloquium on Merger Enforcement, Washington, DC	
"The Economic Foundations of the Merger Guidelines"	1992
American Bar Association, Section on Antitrust Law Leadership Council Conference, Monterey, CA	
"Applying the 1992 Merger Guidelines"	1992
OECD Competition Policy Meeting, Paris, France	
"The Economic Impacts of Antidumping Policy"	1992
Center for Public Choice Lecture Series, George Mason University Arlington, VA	
"The Economic Impacts of Antidumping Policy"	1992
Brookings Institution Microeconomics Panel, Washington, DC,	
"Discussion of the Evolution of Industry Structure"	1992
AT&T Conference on Antitrust Essentials	
"Antitrust Standards for Mergers and Joint Ventures"	1991
ABA Institute on The Cutting Edge of Antitrust: Market Power	
"Assessing and Proving Market Power: Barriers to Entry"	1991
Second Annual Workshop of the Competition Law and Policy Institute of New Zealand	
"Merger Analysis, Industrial Organization Theory, and Merger Guidelines"	1991
"Exclusive Dealing and the <u>Fisher &amp; Paykel</u> Case"	1991



Special Seminar of the New Zealand Treasury "Strategic Behavior, Antitrust, and The Regulation of Natural Monopoly"	1991
Public Seminar of the Australian Trade Practices Commission "Antitrust Issues of the 1990's"	1991
National Association of Attorneys General Antitrust Seminar "Antitrust Economics"	1991
District of Columbia Bar's 1991 Annual Convention "Administrative and Judicial Trends in Federal Antitrust Enforcement"	1991
ABA Spring Meeting "Antitrust Lessons From the Airline Industry"	1991
Conference on The Transition to a Market Economy - Institutional Aspects "Anti-Monopoly Policies and Institutions"	1991
Conference Board's Thirtieth Antitrust Conference "Antitrust Issues in Today's Economy"	1991
American Association for the Advancement of Science Annual Meeting "Methodologies for Economic Analysis of Mergers"	1991
General Seminar, Johns Hopkins University "Economic Rationales for the Scope of Privatization"	1991
Capitol Economics Speakers Series "Economics of Merger Guidelines"	1991
CRA Conference on Antitrust Issues in Regulated Industries "Enforcement Priorities and Economic Principles"	1990
Pepper Hamilton & Scheetz Anniversary Colloquium "New Developments in Antitrust Economics"	1990
PLI Program on Federal Antitrust Enforcement in the 90's "The Antitrust Agenda of the 90's"	1990
FTC Distinguished Speakers Seminar "The Evolving Merger Guidelines"	1990
The World Bank Speakers Series "The Role of Antitrust Policy in an Open Economy"	1990

Seminar of the Secretary of Commerce and Industrial Development of Mexico "Transitions to a Market Economy"	1990
Southern Economics Association "Entry in Antitrust Analysis of Mergers"	1990
"Discussion of Strategic Investment and Timing of Entry"	1990
American Enterprise Institute Conference on Policy Approaches to the Deregulation of Network Industries "Discussion of Network Problems and Solutions"	1990
American Enterprise Institute Conference on Innovation, Intellectual Property, and World Competition "Law and Economics Framework for Analysis"	1990
Banco Nacional de Desenvolvimento Economico Social Lecture "Competition Policy: Harnessing Private Interests for the Public Interest"	1990
Western Economics Association Annual Meetings "New Directions in Antitrust from a New Administration"	1990
"New Directions in Merger Enforcement: The View from Washington"	1990
Woodrow Wilson School Alumni Colloquium "Microeconomic Policy Analysis and Antitrust--Washington 1990"	1990
Arnold & Porter Lecture Series "Advocating Competition"	1991
"Antitrust Enforcement"	1990
ABA Antitrust Section Convention "Recent Developments in Market Definition and Merger Analysis"	1990
Federal Bar Association "Joint Production Legislation: Competitive Necessity or Cartel Shield?"	1990
Pew Charitable Trusts Conference "Economics and National Security"	1990
ABA Antitrust Section Midwinter Council Meeting "Fine-tuning the Merger Guidelines"	1990
"The State of the Antitrust Division"	1991
International Telecommunications Society Conference "Discussion of the Impact of Telecommunications in the UK"	1989

The Economists of New Jersey Conference "Recent Perspectives on Regulation"	1989
Conference on Current Issues Challenging the Regulatory Process "Innovative Pricing and Regulatory Reform"	1989
"Competitive Wheeling"	1989
Conference Board: Antitrust Issues in Today's Economy "Foreign Trade Issues and Antitrust"	1989
McKinsey & Co. Mini-MBA Conference "Economic Analysis of Pricing, Costing, and Strategic Business Behavior"	1989
	1994
Olin Conference on Regulatory Mechanism Design "Revolutions in Regulatory Theory and Practice: Exploring The Gap"	1989
University of Dundee Conference on Industrial Organization and Strategic Behavior "Mergers in Differentiated Product Industries"	1988
Leif Johanson Lectures at the University of Oslo "Normative Issues in Industrial Organization"	1988
Mergers and Competitiveness: Spain Facing the EEC "Merger Policy"	1988
"R&D Joint Ventures"	1988
New Dimensions in Pricing Electricity "Competitive Pricing and Regulatory Reform"	1988
Program for Integrating Economics and National Security: Second Annual Colloquium "Arming Decisions Under Asymmetric Information"	1988
European Association for Research in Industrial Economics "U.S. Railroad Deregulation and the Public Interest"	1987
"Economic Rationales for the Scope of Privatization"	1989
"Discussion of Licensing of Innovations"	1990
Annenberg Conference on Rate of Return Regulation in the Presence of Rapid Technical Change "Discussion of Regulatory Mechanism Design in the Presence of Research, Innovation, and Spillover Effects"	1987
Special Brookings Papers Meeting "Discussion of Empirical Approaches to Strategic Behavior"	1987

"New Merger Guidelines"	1990
Deregulation or Regulation for Telecommunications in the 1990's "How Effective are State and Federal Regulations?"	1987
Conference Board Roundtable on Antitrust "Research and Production Joint Ventures"	1990
"Intellectual Property and Antitrust"	1987
Current Issues in Telephone Regulation "Economic Approaches to Market Dominance: Applicability of Contestable Markets"	1987
Harvard Business School Forum on Telecommunications "Regulation of Information Services"	1987
The Fowler Challenge: Deregulation and Competition in The Local Telecommunications Market "Why Reinvent the Wheel?"	1986
World Bank Seminar on Frontiers of Economics "What Every Economist Should Know About Contestable Markets"	1986
Bell Communications Research Conference on Regulation and Information "Fuzzy Regulatory Rules"	1986
Karl Eller Center Forum on Telecommunications "The Changing Economic Environment in Telecommunications: Technological Change and Deregulation"	1986
Railroad Accounting Principles Board Colloquium "Contestable Market Theory and ICC Regulation"	1986
Canadian Embassy Conference on Current Issues in Canadian -- U.S. Trade and Investment "Regulatory Revolution in the Infrastructure Industries"	1985
Eagleton Institute Conference on Telecommunications in Transition "Industry in Transition: Economic and Public Policy Overview"	1985
Brown University Citicorp Lecture "Logic of Regulation and Deregulation"	1985
Columbia University Communications Research Forum "Long Distance Competition Policy"	1985

American Enterprise Institute Public Policy Week "The Political Economy of Regulatory Reform"	1984
MIT Communications Forum "Deregulation of AT&T Communications"	1984
Bureau of Census Longitudinal Establishment Data File and Diversification Study Conference "Potential Uses of The File"	1984
Federal Bar Association Symposium on Joint Ventures "The Economics of Joint Venture Assessment"	1984
Hoover Institute Conference on Antitrust "Antitrust for High-Technology Industries"	1984
NSF Workshop on Predation and Industrial Targeting "Current Economic Analysis of Predatory Practices"	1983
The Institute for Study of Regulation Symposium: Pricing Electric, Gas, and Telecommunications Services Today and for the Future "Contestability As A Guide for Regulation and Deregulation"	1984
University of Pennsylvania Economics Day Symposium "Contestability and Competition: Guides for Regulation and Deregulation"	1984
Pinhas Sapir Conference on Economic Policy in Theory and Practice "Corporate Governance and Market Structure"	1984
Centre of Planning and Economic Research of Greece "Issues About Industrial Deregulation"	1984
"Contestability: New Research Agenda"	1984
Hebrew and Tel Aviv Universities Conference on Public Economics "Social Welfare Dominance Extended and Applied to Excise Taxation"	1983
NBER Conference on Industrial Organization and International Trade "Perspectives on Horizontal Mergers in World Markets"	1983
Workshop on Local Access: Strategies for Public Policy "Market Structure and Government Intervention in Access Markets"	1982
NBER Conference on Strategic Behavior and International Trade "Industrial Strategy with Committed Firms: Discussion"	1982

Columbia University Graduate School of Business, Conference on Regulation and New Telecommunication Networks	
"Local Pricing in a Competitive Environment"	1982
International Economic Association Roundtable Conference on New Developments in the Theory of Market Structure	
"Theory of Contestability"	1982
"Product Development, Investment, and the Evolution of Market Structures"	1982
N.Y.U. Conference on Competition and World Markets: Law and Economics	
"Competition and Trade Policy--International Predation"	1982
CNRS-ISPE-NBER Conference on the Taxation of Capital	
"Welfare Effects of Investment Under Imperfect Competition"	1982
Internationales Institut für Management und Verwaltung Regulation Conference	
"Welfare, Regulatory Boundaries, and the Sustainability of Oligopolies"	1981
NBER-Kellogg Graduate School of Management Conference on the Econometrics of Market Models with Imperfect Competition	
"Discussion of Measurement of Monopoly Behavior: An Application to the Cigarette Industry"	1981
The Peterkin Lecture at Rice University	
"Deregulation: Ideology or Logic?"	1981
FTC Seminar on Antitrust Analysis	
"Viewpoints on Horizontal Mergers"	1982
"Predation as a Tactical Inducement for Exit"	1980
NBER Conference on Industrial Organization and Public Policy	
"An Economic Definition of Predation"	1980
The Center for Advanced Studies in Managerial Economics Conference on The Economics of Telecommunication	
"Pricing Local Service as an Input"	1980
Aspen Institute Conference on the Future of the Postal Service	
"Welfare Economics of Postal Pricing"	1979
Department of Justice Antitrust Seminar	
"The Industry Performance Gradient Index"	1979
Eastern Economic Association Convention	
"The Social Performance of Deregulated Markets for Telecommunications"	

Services"	1979
Industry Workshop Association Convention "Customer Equity and Local Measured Service"	1979
Symposium on Ratemaking Problems of Regulated Industries "Pricing Decisions and the Regulatory Process"	1979
Woodrow Wilson School Alumni Conference "The Push for Deregulation"	1979
NBER Conference on Industrial Organization "Intertemporal Sustainability"	1979
World Congress of the Econometric Society "Theoretical Industrial Organization"	1980
Institute of Public Utilities Conference on Current Issues in Public Utilities Regulation "Network Access Pricing"	1978
ALI-ABA Conference on the Economics of Antitrust "Predatoriness and Discriminatory Pricing"	1978
AEI Conference on Postal Service Issues "What Can Markets Control?"	1978
University of Virginia Conference on the Economics of Regulation "Public Interest Pricing"	1978
DRI Utility Conference "Marginal Cost Pricing in the Utility Industry: Impact and Analysis"	1978
International Meeting of the Institute of Management Sciences "The Envelope Theorem"	1977
University of Warwick Workshop on Oligopoly "Industry Performance Gradient Indexes"	1977
North American Econometric Society Convention "Intertemporal Sustainability"	1979
"Social Welfare Dominance"	1978
"Economies of Scope, DAIC, and Markets with Joint Production"	1977
Telecommunications Policy Research Conference "Transition to Competitive Markets"	1986

"InterLATA Capacity Growth, Capped NTS Charges and Long Distance Competition"	1985
"Market Power in The Telecommunications Industry"	1984
"FCC Policy on Local Access Pricing"	1983
"Do We Need a Regulatory Safety Net in Telecommunications?"	1982
"Anticompetitive Vertical Conduct"	1981
"Electronic Mail and Postal Pricing"	1980
"Monopoly, Competition and Efficiency": Chairman	1979
"A Common Carrier Research Agenda"	1978
"Empirical Views of Ramsey Optimal Telephone Pricing"	1977
"Recent Research on Regulated Market Structure"	1976
"Some General Equilibrium Views of Optimal Pricing"	1975
<b>National Bureau of Economic Research Conference on Theoretical Industrial Organization</b>	
Discussion of "Compensating Variation as a Measure of Welfare Change"	1976
<b>Conference on Pricing in Regulated Industries: Theory &amp; Application</b>	
"Ramsey Optimal Pricing of Long Distance Telephone Services"	1977
<b>NBER Conference on Public Regulation</b>	
"Income Distributional Concerns in Regulatory Policy-Making"	1977
<b>Allied Social Science Associations National Convention</b>	
"Merger Guidelines and Economic Theory"	1990
Discussion of "Competitive Rules for Joint Ventures"	1989
"New Schools in Industrial Organization"	1988
"Industry Economic Analysis in the Legal Arena"	1987
"Transportation Deregulation"	1984
Discussion of "Pricing and Costing of Telecommunications Services"	1983
Discussion of "An Exact Welfare Measure"	1982
"Optimal Deregulation of Telephone Services"	1982
"Sector Differentiated Capital Taxes"	1981
"Economies of Scope"	1980
"Social Welfare Dominance"	1980
"The Economic Definition of Predation"	1979
Discussion of "Lifeline Rates, Succor or Snare?"	1979
"Multiproduct Technology and Market Structure"	1978
"The Economic Gradient Method"	1978
"Methods for Public Interest Pricing"	1977
Discussion of "The Welfare Implications of New Financial Instruments"	1976
"Welfare Theory of Concentration Indices"	1976
Discussion of "Developments in Monopolistic Competition Theory"	1976
"Hedonic Price Adjustments"	1975
"Public Good Attributes of Information and its Optimal Pricing"	1975



"Risk Invariance and Ordinally Additive Utility Functions"	1974
"Consumer's Surplus: A Rigorous Cookbook"	1974
University of Chicago Symposium on the Economics of Regulated Public Utilities "Optimal Prices for Public Purposes"	1976
American Society for Information Science "The Social Value of Information: An Economist's View"	1975
Institute for Mathematical Studies in the Social Sciences Summer Seminar "The Sustainability of Natural Monopoly"	1975
U.S.-U.S.S.R. Symposium on Estimating Costs and Benefits of Information Services "The Evaluation of the Economic Benefits of Productive Information"	1975
NYU-Columbia Symposium on Regulated Industries "Ramsey Optimal Public Utility Pricing"	1975

**Research Seminars 1973-:**

Bell Communications Research (2)	University of California, San Diego
Bell Laboratories (numerous)	University of Chicago
Department of Justice (3)	University of Delaware
Electric Power Research Institute	University of Florida
Federal Reserve Board	University of Illinois
Federal Trade Commission (4)	University of Iowa (2)
Mathematica	Universite Laval
Rand	University of Maryland
World Bank (3)	University of Michigan
Carleton University	University of Minnesota
Carnegie-Mellon University	University of Oslo
Columbia University (4)	University of Pennsylvania (3)
Cornell University (2)	University of Toronto
Georgetown University	University of Virginia
Harvard University (2)	University of Wisconsin
Hebrew University	University of Wyoming

Johns Hopkins University (2)  
M. I. T. (4)  
New York University (4)  
Northwestern University (2)  
Norwegian School of Economics and  
Business Administration

Vanderbilt University  
Yale University (2)  
Princeton University (many)  
Rice University  
Stanford University (5)  
S.U.N.Y. Albany



## **GLOSSARY**

**Forward-looking costs:** Forward-looking costs are the prospective costs that an efficient firm would incur from a change in its level of economic activity (e.g., entry, exit, expansion, contraction). Forward-looking costs bear no necessary relation to embedded historical costs recorded in the firm's accounting books.

**Joint costs:** AT&T uses the term joint costs to refer to costs that derive from the joint production of products in fixed proportions. As so defined, the term joint costs is not synonymous with the terms common costs and shared costs. The term joint costs has little use in the present telecommunications context, because production generally does not occur in fixed proportions.

**Common costs:** The term common costs refers to costs which must be incurred if any one of a multi-product firm's products is produced, but which are not causally attributable to any individual product, because they are not avoided or diminished by ceasing production of any individual product. The term common costs is used in various contexts to describe both costs that are common to all of the firm's products and costs that are shared among more than one but less than all of the firm's products. AT&T uses the term common costs in this context to refer to costs that are common to all of an ILEC's products (or all of an ILEC's carrier-to-carrier products).

**Shared costs:** AT&T uses the term shared costs in this context to refer to costs that are incurred in the production of a specific subset, or various subgroupings, of a multi-product firm's products, but that are not avoided by elimination of less than all members of the subset or subgroup. Rather, shared costs are avoided only if the entire subset or subgroup of products is eliminated.

**Stand-alone costs:** AT&T uses the term stand-alone costs to refer to all of the costs an efficient new entrant would incur to produce a product or group of products, in the absence of barriers to entry, and assuming that the firm produced no other products. TSLRIC, in contrast to SAC, represents the additional costs an efficient firm would incur to produce a product or group of products, assuming that the firm's other existing outputs continued to be produced. For a single-product firm, TSLRIC and stand-alone costs are identical. For a multi-product firm, TSLRIC and stand-alone costs are virtually identical if common and shared costs are de minimis.

**Embedded costs:** Embedded costs are historical costs of investment and operations as recorded on the firm's accounting books. Embedded costs bear no necessary relation to forward-looking economic costs.

**Fully distributed cost (FDC):** Fully distributed cost is the cost per unit of output of a product, measured by summing causally attributable costs and an arbitrary -- i.e., not based on cost causation -- allocation of common and shared costs.

**Overheads:** The term "overhead" is used loosely in a variety of contexts to refer, inter alia, to common or shared costs, as well as costs that are causally attributable to particular products. Stated differently, some expenses commonly referred to as overheads are fixed and common among all products of the firm; others are variable with the number of products a firm offers, but not necessarily variable with volume produced of any particular product; still others are, in fact, causally attributable to particular products. For this reason, it is important to focus on the specific characteristics of the "overhead" in question in determining whether those costs are common, shared, or causally attributable to (and thus properly included in TSLRIC estimates of) particular network element(s).

**Contribution:** The term contribution was originally developed in an embedded-cost, FDC, monopoly environment as way of describing how prices should be set to "contribute" to the recovery of common and shared cost portion of the monopolist's revenue requirement, which was determined by reference to rate-of-return or other rate-based proceedings. In the present context, AT&T uses the term "contribution" to refer to the difference, on a forward-looking basis, between the revenues for a particular product or group of products and the TSLRIC for that product or group of products.

**Residual costs:** Certain ILECs and state regulators have apparently used the term "residual costs" to refer to the difference between the firm's current revenue requirement and the sum of the TSLRICs of all of its regulated services. The term has no economic significance, and residual "costs" have no legal relevance in the present context because of the 1996 Act's requirement that rates not be determined by reference to rate-of-return or other rate-bases proceedings.



Documentation of the:

# **HATFIELD MODEL**

**Version 2.2**  
**Release 1**

Prepared for:

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and

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## TABLE OF CONTENTS

Contents	Page
I. OVERVIEW.....	1
II. GENERAL DESCRIPTION OF THE HATFIELD MODEL AND ITS POTENTIAL APPLICATIONS .....	2
A. EFFICIENT FORWARD-LOOKING PRODUCTION .....	2
B. ADOPTION OF APPROPRIATE TECHNOLOGIES.....	2
C. FIXED WIRE CENTER LOCATIONS .....	3
D. EXISTING GEOGRAPHY AND CHARACTER OF DEMAND.....	3
E. POTENTIAL APPLICATIONS OF THE HATFIELD MODEL .....	4
III. STRUCTURE OF THE MODEL .....	4
A. OVERVIEW OF MODEL ORGANIZATION .....	4
1. Input Data.....	5
2. Line Multiplier .....	6
3. Data Module .....	6
4. Loop Module .....	6
5. Wire Center Module .....	7
6. Convergence Module .....	7
7. Expense Module .....	7
B. INPUT DATA FILE .....	8
1. Overview .....	8
2. Description of Inputs and Assumptions .....	8
3. Description of Module Outputs and Connection to Next Module.....	9
C. LINE MULTIPLIER MODULE .....	9
1. Overview .....	9
2. Description of Inputs and Assumptions .....	10
3. Explanation of Key Algorithms .....	11
4. The Modeling of Business Loop Lengths. ....	13
5. Description of Module Outputs and Connection to Next Module.....	13
D. DATA MODULE .....	13
1. Overview .....	13
2. Description of Inputs and Assumptions .....	15
3. Explanation of Key Algorithms .....	16
4. Outputs.....	22
E. LOOP MODULE .....	22
1. Overview .....	22



## TABLE OF CONTENTS

Contents	Page
2. Description of Inputs and Assumptions .....	23
3. Explanation of Key Algorithms .....	30
4. Description of Model Outputs and Connection to Next Module .....	33
F. WIRE CENTER INVESTMENT MODULE .....	33
1. Overview .....	33
2. Description of Inputs and Assumptions .....	35
3. Explanation of Key Algorithms .....	36
G. CONVERGENCE MODULE .....	41
H. EXPENSE MODULE .....	42
1. Overview .....	42
2. Description of Inputs and Assumptions .....	44
3. Explanation of Key Algorithms .....	47
4. Outputs of the Expense Module .....	50
IV. ILLUSTRATIVE MODEL RESULTS .....	52
A. OVERVIEW .....	52
B. ILLUSTRATIVE OUTPUT .....	53
C. DISCUSSION .....	56
Appendix 1: PRINCIPLES TO GUIDE STUDIES OF LOCAL EXCHANGE TOTAL SERVICE LONG-RUN INCREMENTAL COST (TSLRIC)	
Appendix 2: GLOSSARY OF COST TERMS	